CLAIMS:

1. A method of forming an image of body structures from an image data set, notably for highlighting potential nodular structures in a lung, which method includes the steps of

a) forming a binary data set in which the pixels present in the image data set are subdivided into pixels which are to be marked and those which are not to be marked, in which step

a1. a first filtering operation is performed in which a distance value is determined for each pixel, which distance value corresponds to the shortest distance between the pixel and the edge of the image structure in which the pixel is situated, and in which those pixels are selected from the binary data set whose distance value is below a predetermined distance limit value,

a2. a second filtering operation is performed in which those previously selected pixels remain selected which are directly neighbored in both directions of at least one straight line, extending through the pixel, by two pixels having a smaller distance value,

a3. a third filtering operation is performed in which those previously selected pixels remain selected for which the surrounding pixels, situated at a distance corresponding exactly to the distance value of the pixel, have a distance value which is a predetermined distance difference value smaller than the distance value of the pixel to be tested itself,

b) forming a marked image data set from the image data set by marking the pixels having been selected after the last filtering operation in the binary data set, and

c) forming the image of the body structure from the marked image data set.

2. A method as claimed in claim 1, characterized in that filtering by means of limit values of the image values is performed prior to the first filtering operation.

3. A method as claimed in claim 1, characterized in that during the third filtering operation the pixel to be tested is rejected as not to be marked as soon as a surrounding pixel is found whose distance value is the predetermined distance difference value smaller than the distance value of the pixel to be tested itself.

4. A method as claimed in claim 1 or 3, characterized in that the predetermined distance difference value is zero.

5. A method as claimed in claim 1, characterized in that it comprises a fourth filtering operation in which region growth is started as from the previously selected pixels which act as a start element, and that the pixel to be tested is rejected as not to be marked:

- as soon as the region growth reaches a pixel whose distance value is larger than the distance value of the start element and/or
- when the image volume included by the region growth extends further in one direction than a predetermined volume dimension value which is preferably the distance value of the start element.

6. A method as claimed in claim 5, characterized in that the predetermined volume dimension value corresponds to five times the distance value of the start element.

7. A method as claimed in claim 5, characterized in that the region growth takes place point-symmetrically relative to the start element and that the start element is rejected as not to be marked

- as soon as the mean value of the distance values of the pixels included is larger than a predetermined distance mean value which preferably corresponds to the distance value of the start element.

8. A method as claimed in claim 5, characterized in that the region growth takes place point-symmetrically relative to the start element and that the start element is selected so as to be marked or not to be marked on the basis of an evaluation of the variation of the distance value sum, corresponding to the sum of the distance values of the pixels included by the region growth, during the progression of the region growth.

9. A method as claimed in claim 8, characterized in that the variation is plotted as a curve representing the variation of the distance value sum during the progression of the region growth and that the start element is rejected

- if the extreme value quotient of a local minimum of the curve and a previously occurring local maximum of the curve is larger than a predetermined extreme value quotient, preferably being one, and/or
- if the mean value quotient of the mean value of the distance values of the pixels included by the region growth until the local minimum is reached and the distance value of the pixel to be tested is larger than a predetermined mean value quotient, preferably being 0.5.

10. A method as claimed in claim 9, characterized in that the predetermined extreme value quotient amounts to 0.35.

11. A method as claimed in one of the claims 5 to 9, characterized in that it comprises a fifth filtering operation in which the pixels which have not been selected during the fourth filtering operation are selected if they belong to a first image structure which is fused with a second image structure, in that

- the boundary between the first and the second image structure is approached,
- the region growth in conformity with the claims 5 to 9 is repeated, those pixels which are situated, viewed from the start element, beyond the boundary then remaining excluded from the region growth, and
- the start element is selected if none of the conditions in conformity with the claims 4 to 8 is satisfied.

12. A method as claimed in claim 11, characterized in that the boundary is determined in that

- a spatial co-variant matrix is calculated from all pixels
  - which are situated at the edge of the region growth in the growth phase in which in the fourth filtering operation one of the conditions in conformity with the claims 5 to 9 was satisfied, and
  - whose distance value is below a given value or which are situated in the edge zone of an image structure,
- a main component analysis is calculated from the co-variant matrix and

- the eigenvector of the smallest eigenvalue resulting from the main component analysis is used as the surface normal to the boundary.

13. A device for forming an image of body structures from an image data set, notably for highlighting potential nodular structures in a lung, which device comprises

a) means for forming a binary data set by subdividing the pixels present in the image data set into pixels which are to be marked and those which are not to be marked, including

a1. means for performing a first filtering operation in which a distance value of the previously filtered pixels is determined, which distance value corresponds to the shortest distance between the pixel to be tested and the edge of the image structure in which the pixel to be tested is situated, those previously filtered pixels of the binary data set being selected whose distance values are below a predetermined distance limit value,

a2. means for performing a second filtering operation in which those previously filtered pixels are selected which are surrounded only by pixels having a smaller distance value at a distance which corresponds to or is smaller than the distance value of the pixel at least along one straight line which extends through the pixel,

a3. means for performing a third filtering operation during which those previously filtered pixels are selected for which the surrounding pixels, being situated at a distance corresponding to the distance value of the pixel, have a distance value which is a predetermined distance difference value smaller than the distance value of the pixel to be tested itself,

b) means for forming a marked image data set from the image data set by marking the pixels having been selected after the last filtering operation in the binary data set, and

c) means for forming the image of the body structure from the marked image data set.

14. A computer program for forming an image of body structures from an image data set, including programming means which carry out the steps of the method disclosed in claim 1 when run on a computer.